December 8, 2016

Mr. John Krause
Regional Environmental Scientist
BIA Western Regional Office, Division of Environment and Cultural Resources
2600 N. Central Avenue
Suite 210, 4th Floor, MS 620-EM
Phoenix, AZ 85004

Re: Supplemental Soil Sampling Work Plan, Duck Valley Indian Reservation, Owyhee, NV
BIA Contract No. A16PX00431
Akana Project No. 16-005

Dear Mr. Krause:

Akana is pleased to provide the Bureau of Indian Affairs (BIA) this focused supplemental soil sampling work plan (Supplemental Work Plan). The work plan is intended to guide field data collection at the former BIA Road Maintenance Building on the Duck Valley Indian Reservation, Owyhee, Nevada (Facility) and subsequent data analyses and reporting. It is focused on augmenting existing information and data regarding potential presence and concentrations of dioxins and furans in soil within the foot print area of the former Storage Bay 11 at the Facility. The activities presented in this proposal replace the portion of Contract Modification No. 1 Task 6 activities which included collection of site-wide soil samples for dioxins/furans characterization with sampling focused on the former Storage Bay 11 area only. This change in scope was necessitated following further detailed review of site data to date.

BACKGROUND AND OBJECTIVES

The Facility is located within the town of Owyhee, Nevada, on the Duck Valley Indian Reservation, at the location shown on Figure 1. The Facility was formerly used to maintain vehicles, store supplies and equipment, and contained underground storage tanks and heating fuel oil pipelines (SECOR 2004, *Additional Road Shop Soil Investigation* report). Herbicides Dinoseb, 2,4-dichlorophenoxyacetic acid (2,4-D), and 2,4,5-trichlorophenoxyacetic acid (2,4,5-T) were reportedly stored and used at the site. The facility is currently vacant and used for storage of miscellaneous equipment and debris. Figure 2 shows the locations of the former facility buildings and features.

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The soil and groundwater at the Facility have been the subject of multiple environmental investigations and removal actions since 1985, when releases of heating oil fuel to the soil and groundwater at the Facility and adjacent areas were discovered. The previous investigations at the Facility were primarily focused on identifying the extent of impact of petroleum hydrocarbons, and secondarily herbicides, to the environmental media.

In 2004, dioxins and furans were detected in three composite soil samples collected from 6 inches to 3 feet (correlates to a depth of 2 to 5 feet) below the native ground surface (ft bgs) at the locations of former Storage Bays 3, 6, 11 (SECOR 2004). Of the samples analyzed, only the sample from Bay 11 contained dioxins/furans (sum of all polychlorinated dibenzo-dioxins and dibenzo-furans PCDD/PCDF) at a Toxic Equivalent Quotient (TEQ) concentration of 14.41 pg/g, which exceeds the U.S. Environmental Protection Agency (USEPA) Residential Soil Preliminary Remediation Goal (PRG) value of 3.9 pg/g but is less than the Industrial Soil PRG value of 16 pg/g.

Subsequently, one of the discreet samples (RSB-1) used to obtain the above composite sample (RSB-1/RSB-2) was analyzed by USEPA Method 8290. It contained less than the detection limit of 0.11 pg/g of 2,3,7,8-TCDD. It contained a TEQ value of 0.269 pg/g for 2,3,7,8-TCDD (which considers all dioxins and furan species in terms of 2,3,7,8-TCDD toxic equivalency). This value is below both the residential and industrial PRGs. The other discreet sample RSB-2 was subsequently analyzed and contained dioxins/furans at a TEQ 2,3,7,8-TCDD value of 6.11 pg/g (SECOR letter dated 23 December 2004). This value is greater than the Residential but less than the Industrial PRG values. SECOR recommended further investigation of the potential distribution and concentrations of dioxins/furans in soils at this location.

The specific objective of this Supplemental Work Plan is to collect and analyze additional soil samples for dioxins and furans to evaluate reproducibility of the previous laboratory analyses results represented by the former composite sample RSB-2 in soils at the Facility. The data will be evaluated against the USEPA RSLs, and subsequently PRGs if needed, to evaluate whether they pose an unacceptable risk to human health and the environment and whether additional investigations or remedial actions may be warranted.

SAMPLING METHODOLOGY

An Akana geologist will use a stainless steel hand auger to collect soil samples from five locations within the western half of the former Bay 11 foot print, represented by the sample RSB-2, as shown on Figure 3. At each location, discrete soil samples will be collected at approximately 0.5, 2.5, and 4 ft bgs. The discrete samples from each of the borings will be composited in the field for a total of 5 samples and will be submitted to the contract laboratory ESC Lab Sciences, Mt. Juliet, TN, for analysis. Each of the composite samples will be analyzed for Pesticides using EPA Method SW 8151. The sample with the highest

detection of 2,4,5-T will be additionally analyzed for Dioxins/Furans using EPA Method SW 8290. One (1) duplicate composite sample will additionally be retained for laboratory analyses. The samples will be collected into laboratory-provided glass jars, stored in coolers on ice, and shipped via commercial overnight services.

A split sample will be retained from each of the composite samples and placed on a separate chain of custody in the event that the results of the pesticide analysis indicate a remedial action is necessary. Selected split sample(s) would be characterized for waste profiling purposes via laboratory analyses for Pesticides by EPA Method 8151, RCRA 8 Metals using EPA Method 6010/7471, Volatile Organic Compounds (VOCs) using EPA Method 8260, Semi-Volatile Organic Compounds (SVOCs) using EPA Method 8270, and Toxicity Characteristic Leaching Procedures (TCLPs), as needed. The soil samples will be analyzed on a dry weight basis.

The Akana geologist will locate the approximate area of Bay 11 using historical documentation from past investigations. The sampling locations will be marked for utility locating prior to the field work. The Akana staff will coordinate the utility locate services with tribal and BIA personnel. A lithologic log for each boring will be recorded on a Soil Boring Log according to the Unified Soil Classification System (USCS). The log will also include information on the visual and olfactory characteristics of the soil samples and soil cuttings, other physical soil characteristics (such as moisture content, consistency, odor, and color), auguring difficulty, sample recovery, and soil type. Following completion of coring, the boreholes will be filled with the soil cuttings and topped off with one (1) foot of concrete.

DATA REPORTING

The investigation data and findings will be summarized in a report for submittal to the BIA. The report will include the field and laboratory data, summary data tables, a map showing the locations of the soil samples collected, a description of the field work conducted, deviations from the work plan and rationale, and findings and conclusions. The report will additionally include recommendations regarding follow up steps that may be warranted to address the environmental risks, if present.

HEALTH AND SAFETY PLANNING

Akana will prepare a brief site-specific Health & Safety Plan (HASP) and a Job Safety Analysis (JSA) prior to the field work. The Akana personnel assigned to this project have appropriate safety training. The HASP and JSA will be reviewed and approved by Akana's Corporate Health and Safety Manager before mobilization.

TIMELINE

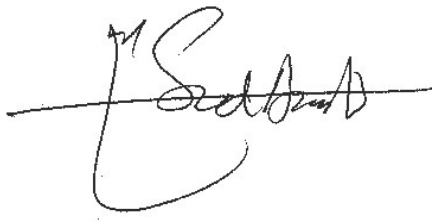
Upon approval of this Supplemental Work Plan, Akana will coordinate site activities, mobilize to the site, and conduct the field investigations. The Akana geologist will coordinate with BIA and with the Tribal personnel to confirm the schedule and coordinate the field logistics.

We anticipate two travel days and one day of field work for the collection of the soil samples. It is anticipated that laboratory report will be received approximately 10 business days from the time the laboratory is in receipt of the samples.

A draft Supplemental Soil Sampling Report will be submitted to BIA for review within 15 business days of receipt of laboratory report. A final report will be submitted to BIA within 15 working days of receipt of comments.

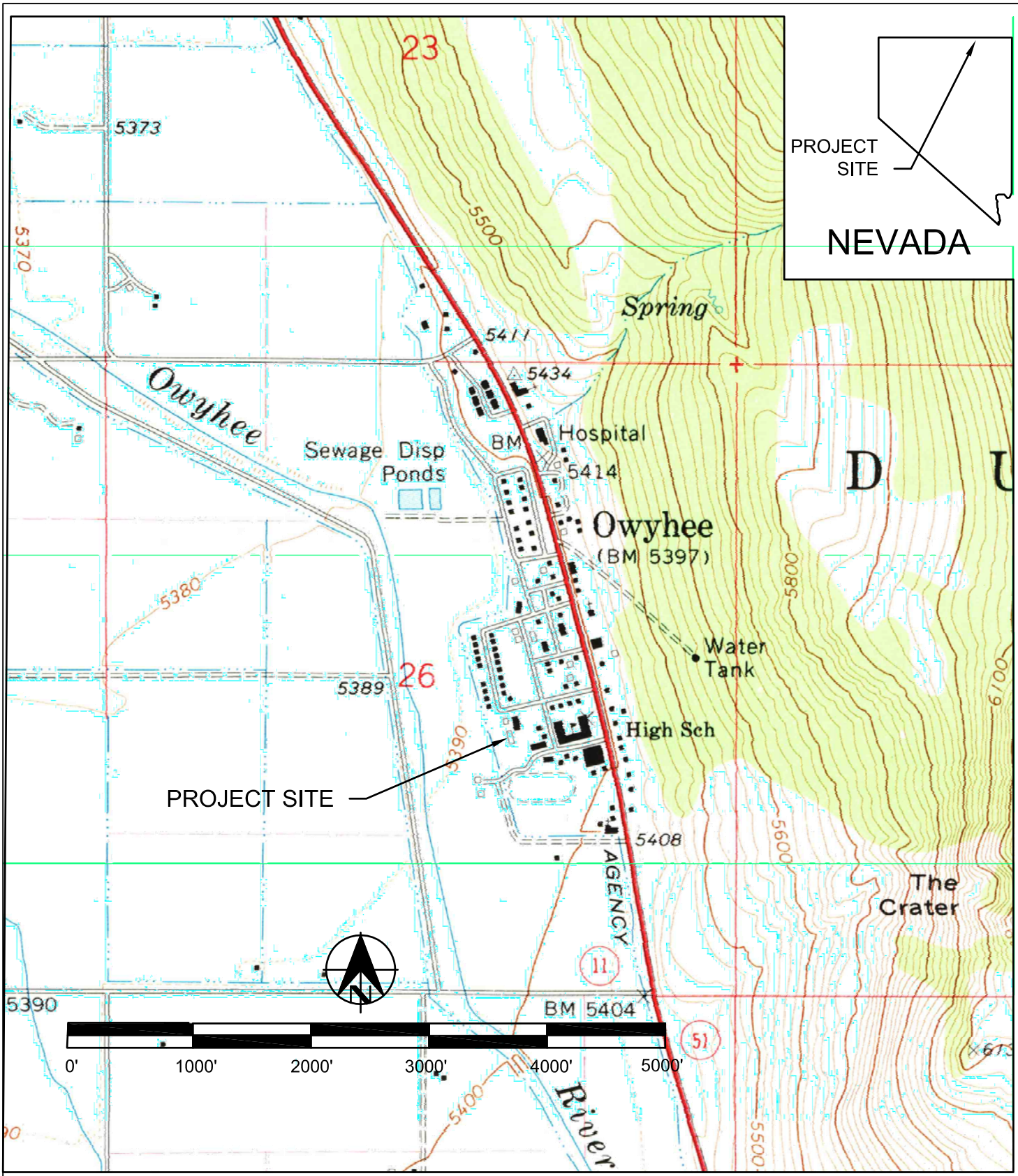
We appreciate being of service to BIA on this important project. Please don't hesitate to contact me at 503-205-9284 or at said.amali@akana.us with any questions regarding the contents of this Supplemental Work Plan.

Sincerely,



Said Amali, PE
Project Manager

Enclosure – Figures 1-3



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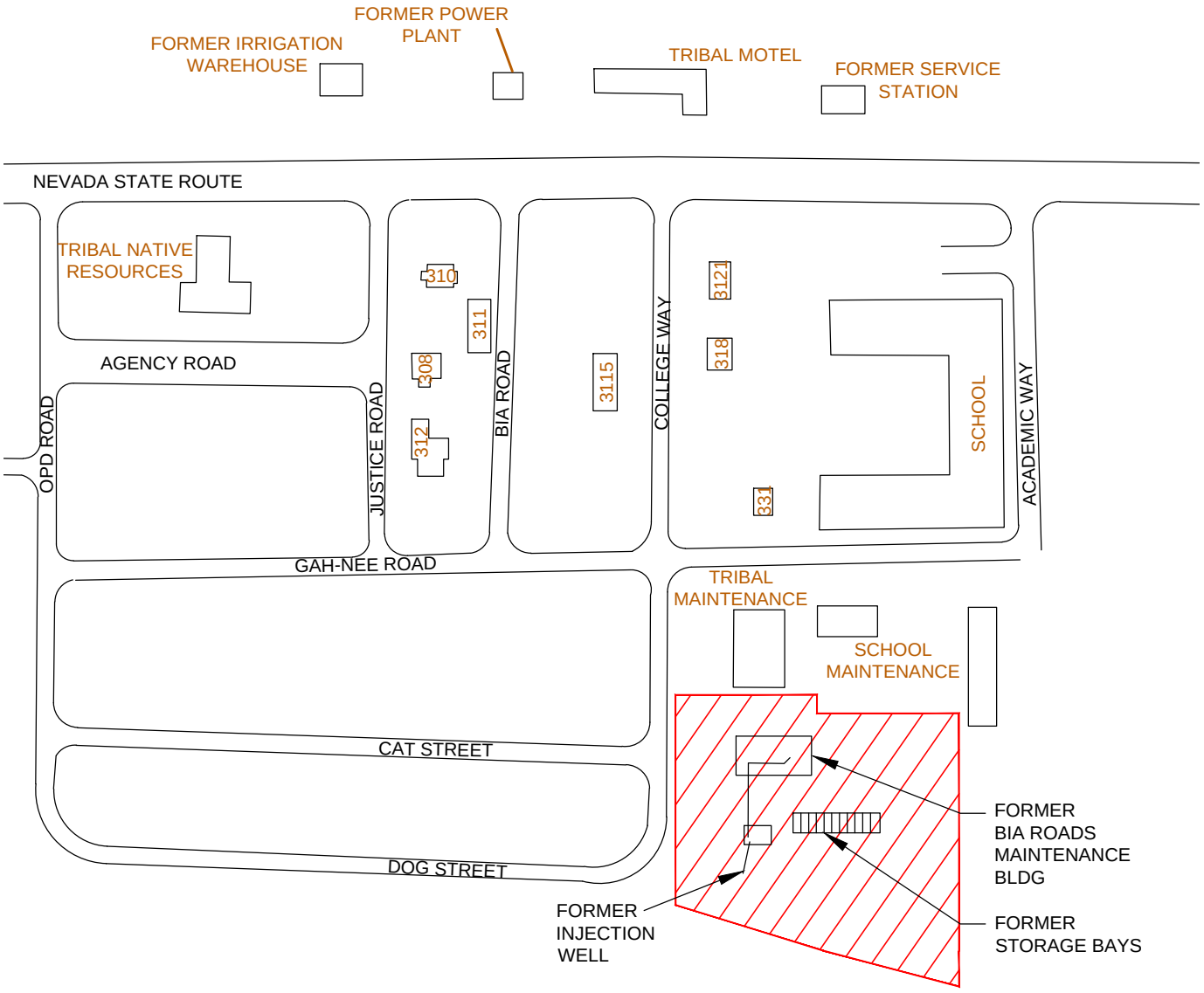
DUCK VALLEY INDIAN RESERVATION
OWYHEE, NV

SITE LOCATION MAP

16-005

1



BAY BOUNDARIES APPROXIMATE.

LEGEND

—x— FENCE

THE FACILITY AS DEFINED IN EPA ORDER

SCALE: 1"=50'

GRAPHIC SCALE

100 0 100 200

(IN FEET)

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DUCK VALLEY INDIAN RESERVATION
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SITE MAP

16-005

2

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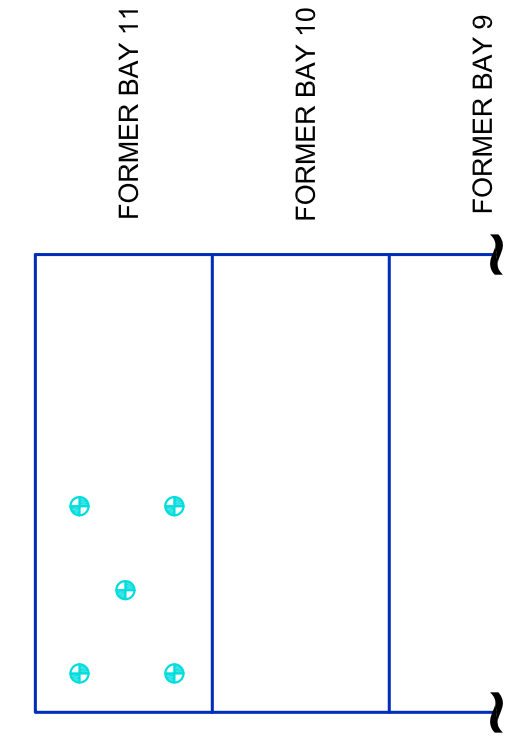

FORMER STORAGE BAYS

BAY BOUNDARIES APPROXIMATE.

LEGEND

SOIL SAMPLING LOCATIONS

SCALE: 1"=100'

GRAPHIC SCALE

5 0 5 10

(IN FEET)

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